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Captain W. H. Smyth, R.N., President, in the Chair.

The following communications were read :—

I. Extract of a Letter from the President to the Secretary.

"I forward you a new epoch of γ Virginis for this apparition, thinking it may be welcome to such of our Fellows as are following up the orbit of that remarkable system, which promises, comparatively, to be to double stars what Halley's Comet is among that class of bodies. I made the observations in Dr. Lee's Observatory, at Hartwell House, with my former instruments, which are always obligingly kept in readiness for my immediate use. The mean micrometrical readings gave 174° 36′·6 for the position, which, corrected to the meridian, and brought to proportional parts, afford

Position 185° 23′·3 (w. 6); Distance 2″·10 (w. 4); Epoch 1845·34.

"The measures made on the 2d and 3d inst. merit considerable confidence, for, previously to my placing the micrometer on the objects, it was steadily viewed in an unilluminated field with a negative eye-piece magnifying 240 times, under which the minute companion following nearly on the parallel was distinctly seen. On this occasion, the wire-micrometer was under a positive eye-piece of 340 times during three sets of the measures, and once under one of 600; and the rock-crystal was applied with its power of 145, doubled by the interposition of the achromatic lens described in my 'Cycle.'"

II. On a new construction of the Divided Eye-glass Double-Image Micrometer. By G. B. Airy, Esq., Astronomer Royal.

The author remarks, that the convenience and accuracy of the double-image micrometer are so great that it is highly desirable to remove, if possible, any of the inconveniences to which it is subject. The form in which he has employed the instrument is that of a four-glass eye-piece, the second lens (as measured from the object-glass) being divided, and one or both segments being

moveable. The second lens must, therefore, be placed in such a position that every pencil of rays coming from the object-glass is equally divided upon the two segments,—a condition which is satisfied when the distance of the second lens from the first is (sensibly) the same as the focal length of the first lens. When this adjustment to focal length is perfectly made, and when also the observer has the power of securing the equal division of light upon the two segments for one pencil (and therefore for all), the use of this eye-piece is extremely convenient. Without any effort in placing the eye in a definite position, a single image, in whatever part of the field, is broken up into two of equal intensity.

The most important defect of the micrometer is this, that, unless certain conditions are respected, the images will be coloured in all parts of the field of view except the centre. This colour is not produced, like the colour in an achromatic object-glass, from the want of convergence of all the rays in one pencil to the same focal distance. It arises from a lateral chromatic disturbance of the focus of each pencil; and it may be represented most conveniently by tracing the course of the axis of each pencil, considered as a single ray subject to chromatic separation, through all the lenses to the eye, when, if they enter the pupil in any relative direction, except that of parallelism, they will produce the sensation of chromatic separation in the direction of the radius of the field of view. In this micrometer eye-piece such a defect is wholly inadmissible, and therefore the first condition is, that the eye-piece shall be (without reference to the fault described, and without regard to the separation of images,) achromatic.

The theory of achromatic eye-pieces was given by the author in the *Cambridge Transactions*, Vol. II., and the first divided eye-glass micrometers which he constructed were made of four-glass eye-pieces in which the equation of achromatism was satisfied, subject to the condition already mentioned, that the distance between the first and second lens should be equal to the focal length of the first lens. But in the use of these a new inconvenience soon manifested itself. The separation of the images is produced by so moving a segment of the divided lens that the pencils of light are received upon a part of the segment where the surfaces are inclined, so that there is introduced in this part of the eye-piece a prismatic refraction and consequently a prismatic dispersion. In general, the dispersion thus produced will not be so modified by the passage of the rays through the two remaining lenses that the rays of all colours (as separated by the motion of the segment of the second lens) will enter the eye in a state of parallelism; and, therefore, the separated images will appear coloured from this cause without respect to the part of the field of view in which they are seen.

This failing is, perhaps, more important than the other, for it affects the estimation of the scale of the micrometer as well as the ordinary use of the micrometer. The only practicable method of ascertaining the scale of the divisions is to place a wire in the meridional direction across the centre of the field; to make two

images of a single star by separation through a known number of divisions in an equatorial direction, and to observe the transit of these two images across the wire. If one or both images are coloured, so as to present the appearance of a spectrum in the direction of separation these transits are uncertain, and the estimation of the scale-divisions derived from them will be uncertain.

It was not till long after this inconvenience had been perceived that it occurred to the author that it was possible to ascertain, in an algebraic form, the theoretical equation upon which the removal of this chromatic dispersion would depend, and thereby to discover whether the two equations (of achromatism in the ordinary case of no separation of images, and achromatism as regards only the dispersion produced by the separation of images) could be satisfied simultaneously, and without disturbing the assumption that the distance between the first and second lenses should be equal to the focal length of the third lens. On forming the equations, and substituting trial numbers, he had the gratification of discovering that numbers could be found for the distances and focal lengths which are very favourable as regards the breadth of the pencil of rays where it meets each lens, and which leave the focal length of the first lens perfectly arbitrary, so that the power of the eye-piece may be changed, preserving all its properties undisturbed, by merely changing the first lens. This is the "new construction" proposed as the object of the paper.

The algebraic investigation is then given in detail; and the author, after the reading of the paper was concluded, gave an oral explanation, illustrated by diagrams, of the construction and the theory upon which it depends.

III. Communications respecting Comets.

1. Mauvais' Second Comet.

1. Observations made at the Royal Observatory, Cape of Good Hope, under the direction of T. Maclear, Esq. Communicated by the Astronomer Royal.

Date.	Star of Comparison.	Cape Mean Time for Right Ascension.	Difference of R. A. of Comet and Star.	No. of Obs.	Cape Mean Time for Declination.	Difference of Declination of Comet and Star.	No. of Obs.
1844.		h m s	m s		h m s	′ ″	
Dec. 19	35	.....	.....	...	9 13 40·5	+ 6 31·0	11
24	36	15 22 16·9	+ 0 56·89	12	15 22 16·9	— 1 31·8	12
25	37	15 42 36·1	— 1 12·41	8	15 42 36·1	+ 7 56·9	8
27	38	15 17 55·9	+ 1 55·55	6	15 46 5·7	— 12 2·2	6
		15 34 44·7	+ 1 47·33	6			
30	39	14 59 38·6	— 1 21·34	6	15 19 42·2	+ 11 16·6	6
		15 53 47·9	— 1 42·02	6			
	40	15 9 45·2	— 1 45·45	5	15 32 39·7	— 8 11·5	6
		15 48 32·9	— 1 59·02	6			

Date.	Star of Comparison.	Cape Mean Time for Right Ascension.	Difference of R. A. of Comet and Star.	No. of Obs.	Cape Mean Time for Declination.	Difference of Declination of Star and Comet.	No. of Obs.
1844.		h m s	m s		h m s	′ ″	
Dec. 31	41	14 24 46·5	− 3 22·48	12	14 47 5·2	− 2 55·1	11
		15 5 37·0	− 3 35·97	12	15 27 10·8	− 5 1·9	8
		15 42 21·7	− 3 48·50	12			
1845.							
Jan. 5	42	14 15 17·7	− 0 12·23	20	14 59 22·7	+ 5 18·5	6
		14 35 0·3	− 0 15·70	10	15 23 57·9	+ 4 5·2	6
	43	13 59 26·6	− 0 39·98	18	14 45 26·4	− 9 24·2	8
		14 26 30·6	− 0 45·76	10	15 13 3·2	− 10 52·2	6
9	44	13 24 12·1	+ 0 27·12	20	13 48 58·2	+ 5 39·0	20
		14 21 24·6	+ 0 18·31	20			
11	45	12 56 7·0	− 1 43·47	16	13 21 26·4	+ 0 46·7	14
		13 48 50·3	− 1 36·85	16			
12	46	12 35 26·5	− 1 25·37	16	12 59 35·4	+ 4 0·0	12
		13 25 19·1	− 1 31·23	16			
15	47	12 24 53·9	+ 1 21·53	16	12 53 17·6	− 7 55·0	16
		13 22 53·9	+ 1 16·46	16			
18	48	11 58 45·3	− 2 9·91	18	12 33 18·3	+ 1 40·5	14
		13 9 23·1	− 2 14·87	18			
24	50	10 58 23·8	− 1 31·24	18	11 20 59·4	− 10 34·4	14
		11 46 36·7	− 1 32·94	18			
25	51	10 59 51·2	+ 2 39·65	18	11 31 19·5	− 0 36·1	10
		12 2 48·6	+ 2 37·30	18			
28	52	11 7 40·1	+ 0 51·29	12	11 22 54·1	+ 6 53·2	10
		11 28 10·8	+ 0 50·29	12			
29	53	10 52 59·1	− 1 15·15	16	11 10 54·8	+ 6 24·6	12
		11 29 3·7	− 1 16·36	16			
30	54	10 53 35·0	+ 1 19·54	16	11 13 54·1	+ 7 20·5	12
		11 36 10·6	+ 1 18·25	16			
31	55	11 3 22·3	+ 4 6·18	12	11 28 23·4	+ 1 25·8	10
		11 54 19·7	+ 4 5·18	12			
Feb. 4	56	10 34 27·9	+ 0 24·85	12	10 52 21·8	− 2 23·6	6
		11 12 57·5	+ 0 24·71	12			
	57	10 34 27·9	− 0 26·53	12	10 55 56·5	+ 10 7·5	6
		11 12 57·5	− 0 26·81	12			
8	58	10 33 58·3	− 1 0·65	12	10 48 11·7	+ 2 37·4	10
		11 7 9·7	− 1 0·93	8			
9	59	10 10 51·4	+ 1 0·29	12	10 25 39·0	+ 6 36·4	10
		10 39 53·5	+ 1 0·00	12			

The sign + denotes the comet's right ascension or declination to be greater than the star's; the sign — the contrary.

The observations on December 19th, 24th, and 25th, were made with the spider-line position micrometer applied to Dollond's 46-inch achromatic, and all those on the following days, with the bar micrometer; the comet having become too faint to bear the slightest illumination.

The differences of right ascension and declination are not corrected for the effects of parallax and refraction.

Approximate Places of the Stars of Comparison.

No. of Star.	Magnitude.	Right Ascension.	Declination.	Remarks.
		h m s	° ′	
35	8	7 0 2	−65 41	* (36) follows β *Doradus* $2^m\ 44^s$, and is 11′ 11″ north of it.
36	10	5 35 1	62 24	
37	8	5 23 23	61 13	
38	7	4 56 18	59 22	
39	3	4 30 40	55 22	* (39) is α *Doradus.*
40	8	4 31 0	55 42	
41	8	4 24 54	54 22	
42	9	3 50 58	47 58	
43	7	3 51 30	48 14	
44	8	3 33 59	43 18	
45	8·9	3 26 24	41 8	
46	10·11	3 26 46	40 0	
47	8·9	3 16 49	37 8·2	
48	8·9	3 14 44	34 6	
50	7·8	3 7 21	29 21·5	* (50) follows 12 *Eridani* (A.S.C. 353) $1^m\ 51^s{\cdot}8$, and is 14′ 35″·2 north of it.
51	6	3 1 13	28 26	
52	9·10	3 0 32	26 9	* (51) is A. S. C. (347)
53	7·8	3 2 1	25 29	
54	8·9	2 58 57	24 48	
55	4	2 55 34	24 19	* (55) is A. S. C. (336)
56	9	2 57 33	22 1	
57	9	2 58 24	21 43	
58	7·8	2 57 51	19 41	
59	8·9	2 55 48	−19 7	

2. Observations made at Starfield, by Mr. Lassel.

1845.	Sidereal Time.	Apparent R. A.	Sidereal Time.	Apparent Dec.
	h m s	h m s	h m s	° ′ ″
Jan. 31	4 8 54·9	2 59 41·7	4 8 28·0	−24 1 8·1
Feb. 1	4 57 28·6	2 59 12·8	4 57 28·6	23 42 20·9
3	4 49 32·8	2 58 20·5	4 19 1·6	22 30 48·2
6	4 55 54·9	2 57 26·4	4 51 53·3	20 48 6·7

3. Observation made at Mr. Bishop's Observatory, Regent's Park, by Mr. Hind.

1845. Feb. 2, at $7^h\ 7^m\ 7^s$ Greenwich Mean Time.
Right Ascension, 44° 42′ 32″ Declination, −23° 7′ 44″

Corrected for refraction and index-error.

4. Observation made at Dr. Lee's Observatory, Hartwell, by Mr. John Glaisher.

1845. March 8, at $7^h\ 31^m\ 40^s$ Greenwich Mean Time.
Apparent Right Ascension, $3^h\ 2^m\ 2.^s2$ Apparent N. P. D. 99° 9′ 32.″1.

II. Great Comet of 1844–5.

1. Observations made at the Royal Observatory, Cape of Good Hope. Communicated by the Astronomer Royal.

Day.	Star of Comparison.	Cape Mean Time for Right Ascension.	Difference of R. A. of Comet and Star.	No. of Obs.	Cape Mean Time for Declination.	Difference of Declination of Comet and Star.	No. of Obs.
1844.		h m s	′ ″		h m s	′ ″	
Dec. 24	1	8 17 29·4	+0 45·27	2	8 17 29·4	+ 9 5·7	2
27	2	8 14 40·3	+0 24·90	10	8 14 40·3	+ 8 54·5	10
	3	8 37 35·2	−0 14·38	10	8 37 35·2	− 3 52·0	10
28	4	8 9 13·8	+1 7·68	10	8 9 13·8	+ 5 17·8	10
		9 7 33·0	+1 36·14	8	9 7 33·0	+ 7 4·5	8
30	5	8 38 56·8	+0 54·74	7	8 38 33·8	−25 29·7	6
		9 31 50·4	+1 22·63	6	9 31 50·4	−24 15·8	6
	6	9 6 2·2	+1 25·21	9	9 6 29·7	+30 8·9	8
31	7	8 31 23·7	−0 40·94	10	8 31 23·7	+ 5 26·6	10
		9 8 33·4	−0 21·89	10	9 8 33·4	+ 6 9·5	10
1845.							
Jan. 1	8	8 42 56·6	−1 57·08	9	8 42 56·6	− 4 0·6	9
3	9	9 20 27·9	−0 54·37	5	9 20 27·9	+ 8 48·6	5
5	10	9 58 45·3	+2 8·31	7	9 58 45·3	+20 21·6	7
6	11	8 14 9·3	−0 32·87	10	8 14 9·33	− 5 28·3	10
		9 34 11·7	+0 8·46	12	9 45 58·7	− 5 51·9	12
		10 3 5·9	+0 23·64	12			
	12	9 9 6·2	+0 52·26	10	9 9 6·2	+15 11·2	10

Day.	Star of Comparison.	Cape Mean Time for Right Ascension.	Difference of R.A. of Comet and Star.	No. of Obs.	Cape Mean Time for Declination.	Difference of Declination of Comet and Star.	No. of Obs.
1845.		h m s	′ ″		h m s	′ ″	
Jan. 9	13	9 1 58·5	−0 21·10	12	9 1 58·5	−14 21·7	12
		9 25 20·6	−0 9·50	10	9 40 13·1	−14 55·9	14
		9 58 19·8	+0 6·55	8			
11	14	9 24 12·3	−1 18·59	10	9 24 12·3	+26 20·0	10
12	15	9 14 45·7	−1 55·55	10	9 14 45·7	−21 37·7	10
	16	9 54 17·5	−1 8·97	10	9 54 17·5	+18 49·3	10
15	17	9 58 3·8	+1 34·78	10	9 58 3·8	+17 43·6	10
	18	9 26 42·8	+0 58·12	10	9 26 42·8	−19 38·2	10
16	19	10 34 4·0	−0 50·50	14	10 34 4·0	+4 27·6	14
17	20	10 13 24·1	−4 47·72	6	10 13 24·1	−5 23·8	6
18	21	9 41 8·8	+2 38·02	15	9 41 8·8	−8 35·5	15
19	22	9 49 12·3	+2 2·87	1	9 49 12·3	+8 55·8	1
		10 19 42·4	+1 51·78	2	10 19 42·4	+7 56·2	2
22	23	9 4 24·4	+1 38·42	10	9 4 24·4	−6 16·9	10
		9 55 28·2	+1 53·69	10	9 55 28·2	−7 59·7	10
24	24	9 3 12·9	−0 11·31	12	9 21 25·8	−10 47·2	16
		10 12 54·2	+0 7·72	12			
25	25	8 54 28·4	+0 48·03	10	8 54 28·4	−17 24·2	10
	26	9 30 22·6	−0 58·12	10	9 30 22·6	+11 41·4	10
27	27	9 49 1·8	−4 4·61	8	9 49 1·8	−7 3·9	8
28	28	9 41 9·0	+1 40·10	12	9 41 9·0	−0 22·7	12

The + sign denotes the comet's right ascension or declination to be greater than the star's; the − sign the contrary.

The above observations were made with the spider-line position micrometer attached to Dollond's 46-inch achromatic, and with a power of 43. They are not corrected for the effects of refraction and parallax.

Approximate Places of the Stars of Comparison.

No. of Star.	Magnitude.	Right Ascension.	Declination.	Remarks.
		h m s	° ′	
1	7	19 42 45	−38 10	
2	8	20 16 26	40 55	* (2) follows Madras Cat. 9387 $1^m\,0^s$, and is 22′ 39″ north of it.
3	9	20 17 17	41 8	* (3) follows Madras Cat. 9387 $1^m\,51^s$, and is 9′ 3″ north of it.
4	7	20 27 1	41 44	
5	8	20 51 57	43 35	
6	...	20 51 37	42 40	
7	9	21 5 57	43 34	
8	7·8	21 19 48	44 12	
9	9	21 44 18	44 32	
10	8	22 6 54	44 26	
11	7	22 20 29	44 32	
12	5	22 21 26	44 53	* (12) is δ^2 *Gruis*.
13	5	22 58 8	44 21	* (13) is θ *Gruis*.
14	8	23 22 11	42 50	* (14) is Madras 10·784.
15	7·8	23 33 42	43 8	* (15) is Madras 10·851.
16	8	23 33 14	42 26	
17	8	0 0 56	40 37	
18	8	0 3 17	41 15	
19	7·8	0 13 11	40 6	* (19) is No. 64 of the Madras General Catalogue.
20	8·9	0 25 46	39 32	
21	8	0 27 6	38 51	* (21) is Madras (149).
22	8	0 40 1	37 48	
23	7·8	0 59 1	35 38	
24	8	1 14 34	34 4	
25	7	1 19 55	33 22	
26	8·9	1 21 50	32 52	
27	9	1 36 51	31 30	* (28) follows (527) $7^m\,45^s{\cdot}4$, and is 6′ 34″ north of it.
28	9	1 36 44	−30 36	

Mr. Maclear remarks that this comparatively splendid comet was reported to have been seen by a person at Green Point on the 18th of December. Captain Eardly Wilmot, R.A., saw it the next evening from the same neighbourhood. The tail, then pointing upwards, was 3° or 4° in length, and the head seemed to descend below the horizon simultaneously with the planet *Mercury*. On the 30th December, the tail was 10° 30′ in length, and with the power 43 of the nucleus pungently bright. The angle at the nucleus between the meridian circle passing through the nucleus and the axis

of the tail was 22° 30′ towards the north or right hand. On the 31st this angle was 21° 15′, and on January 6, 11° 5′, and on the latter evening the length of the tail was about 8°. On January 11, a faint ray of luminous matter, about 1¼ degree in length, was seen to extend to from the anterior portion of the comet's head in a direction opposite to that of the tail. The breadth of this ray near the head was about 2′, increasing slightly towards the extremity. Its borders were comparatively well defined, and the light gradually diminished in intensity from that portion nearest the comet's head, until it became insensible. A dark space seemed to separate the head of the comet and ray. From the 18th to the 27th, the tail and the anterior ray were both rendered invisible by the moonlight. Viewed with the comet-sweeper on the latter evening, the northern borders of the tail and anterior ray appeared distinct and sharply defined, but the light became fainter towards the southern border of tail, and the corresponding border of the ray could no longer be traced. The whole presented a fan-like appearance. Viewed with the 46-inch achromatic, power 43, the anterior extension of the light could be traced as a distinct ray for about 5′ from the comet's head, the luminous matter on the southern border becoming then diffused and scattered, while the northern border continued well defined. The actual connexion of the rays and head of the comet still could not be traced. On the 9th of February both comets (the great comet and Mauvais' comet) were within the field of view of the comet-sweeper.

2. Extract of a Letter from W. Pole, Esq. dated Elphinstone College, Bombay, Jan. 30, 1845, to Professor Christie. Communicated by Professor Christie.

Mr. Pole states that the comet was seen in the southern part of India towards the end of December, and at Bombay in the beginning of January. The nucleus resembled a star of the fifth or sixth magnitude, and the tail (which was straight and pointed directly from the sun) could be traced distinctly from 7 to 10 degrees. Its light was but faint, but the whole was visible to the naked eye, and formed a beautiful object in the south-west part of the heavens. From two positions obtained roughly by means of a sextant and theodolite, combined with a third observation made at sea, Mr. Pole deduced approximate elements, from which he inferred that the orbit has some resemblance to that of a comet which appeared in 1737; and he remarks that, if we go back by periods of 107 years, we arrive at A.D. 238, and that a comet resembling the present one appeared in 240. We have also $240 + (107 \times 7) = $ A.D. 989; and again, $989 + 107 = $ A.D. 1096; and it happens that comets are mentioned in both these years.

3. Observation made at Mr. Bishop's Observatory, Regent's Park, by Mr. Hind.

The comet was observed on the evening of March 3, 1845: it was extremely faint, appearing as an oval mass of light, with a

slight condensation of the cometic matter towards the centre. No micrometrical measures could be made owing to the faintness of the comet: it was, therefore, compared instrumentally with *δ Eridani* and its position connected for refraction and index error, was found to be as follows :—

March 3, at	7 19 56 Greenwich Mean Time	$\mathcal{R}$ 52 56 9	2 obs.
	7 21 53 ——	— Dec.—10 34 25	3 obs.

III. De Vico's First, or Periodical Comet.

1. Observations made at Starfield, with the 9-foot equatoreal, corrected for refraction, but not for parallax. By Mr. Lassel.

1844.	Sidereal Time.	Apparent R. A.	Sidereal Time.	Apparent Dec.
	h m s	h m s	h m s	° ′ ″
Sept. 19	23 56 48·9	0 52 47·6	23 57 52·4	−10 57 55
20	23 34 10·8	0 54 38·4	23 34 10·8	10 29 46·3
30	23 50 26·0	1 9 29·1	23 50 26·0	5 58 55
Oct. 7	1 9 48·7	1 16 16·1	1 9 48·7	3 9 38
11	23 34 43·7	1 19 5·7	23 34 43·7	1 43 48·7
15	2 36 4·0	1 21 48·6	2 33 31·3	0 21 27·6
17	1 45 27·2	1 22 54·3	1 44 8·8	+0 15 49·4
22	1 11 22·0	1 25 32·1	1 8 24·5	1 44 34·5

2. Observations made with the large refractor at Mr. Bishop's Observatory, Regent's Park. By Mr. Hind. Corrected for refraction, but not for parallax.

1844.	Greenwich Mean Time.	Comet's App. R. A.	Comet's App. Dec.	
	h m s	h m s	° ′ ″	
Oct. 19	9 55 29	1 23 55·9	+0 51 8	Instrumental place.
20	9 36 14	1 24 26·7	1 8 19	
22	10 27 12	1 25 27·6	1 43 28	
	11 7 12	1 25 29·50	1 44 15·4	Microm. Measures
Nov. 4	10 2 21	1 32 5·67	5 0 55·5	
6	9 27 53	1 33 10·20	5 27 44·9	
9	8 58 10	1 34 54·15	6 5 45·7	
30	7 22 51	1 50 40·19	10 0 7·9	R. A. uncertain.
Dec. 6	7 36 10	1 56 27·86	10 59 30·3	Microm. Measures.

IV. De Vico's Second Comet.

1. Observations made at Starfield. By Mr. Lassel.

1845.	Sidereal Time.	Apparent R.A.	Sidereal Time.	Apparent Dec.
	h m s	h m s	h m s	° ′ ″
March 29	9 25 41·0	8 24 29·0	9 23 7·0	+11 27 13·2
31	9 56 9·1	8 16 48·4	9 53 44·1	7 59 20·3
April 2	9 54 43·5	8 13 10·5	9 52 4·4	4 43 50·9
4	9 42 31·0	8 8 30·6	9 40 29·0	1 39 36·7
7	9 59 22·8	8 2 25·7	9 58 57·9	−2 38 0·7

The apparent places of the stars of comparison are deduced from observations with the equatoreal of the nearest known stars; the correction for differences of refraction being duly applied.

2. Observations made at Hamburg. By C. Rumker, Esq. Communicated by Dr. Lee.

1845.	Mean Time at Hamburg. h m s	Apparent R.A. of Comet. h m s	App. Declination of Comet. ° ′ ″
March 10	10 13 43·5	151 2 11·9	44 36 25·0 N.
12	8 34 8·4	147 33 20·2	41 54 23·6
13	12 23 19·6	145 32 56·8	40 9 7·5
14	8 43 19·6	144 8 24·9	38 48 53·9
15	8 11 26·0	142 33 34·2	37 12 48·4
17	8 11 19·7	139 30 4·0	33 45 19·4
24	8 3 40·3	130 45 24·0	20 45 6·2
25	9 49 20·2	129 40 4·3	18 44 16·4
27	9 2 59·5	127 49 19·2	15 5 30·8
29	11 34 11·9	126 3 40·6	11 19 21·4
April 1	8 54 17·5	123 58 8·5	6 24 50·4
2	8 25 54·7	123 20 8·3	4 49 55·6
3	8 44 20·2	122 43 15·9	3 14 35·5
4	9 28 17·1	122 7 54·1	1 40 15·9
5	9 8 41·7	121 35 54·3	0 12 53·4 N.
6	9 36 25·6	121 5 14·7	1 14 31·3 S.
7	8 51 57·4	120 37 41·2	2 35 2·0
10	9 22 14·3	119 21 57·1	6 29 26·0

3. Observations made at Dr. Lee's Observatory, Hartwell. By Mr. John Glaisher and the Rev. J. B. Reade.

1845.	Greenwich Mean Time. h m s	Apparent R. A. ° ′ ″	Greenwich Mean Time. h m s	Apparent N.P.D. ° ′ ″	Star compared.
March 28	8 52 29	8 27 44·98	8 52 29	76 45 2·7	A.S.C. 1062
31	9 30 51	8 18 28·64	9 37 53	82 1 9·7	Piazzi VIII. 67
April 3	9 11 26	8 10 45·61	9 25 32	86 51 14·7	— 107
7	9 21 45	8 2 23·54	9 26 50	92 39 20·1	A.S.C. 994
8	—	—	9 30 44	93 59 39·6	— 994

4. Elements and ephemeris. By Mr. Hind.

The elements are as follows :—

Passage through Perihelion, 1845, April 20·98295, Mean Time, Greenwich.
Log. least distance ..... 0·0987530
Inclination to Ecliptic..... 56° 26′ 35″
Longitude of Perihelion..... 192° 29′ 14″ } from apparent
Longitude of ascending node 347° 6′ 7″ } Equinox, March 0.
Motion direct.

5. Elements computed by Mr. Gotze, of Berlin; and also by Mr. Funk, of Hamburg. Communicated by Dr. Lee.

Those by Mr. Gotze agree very closely with the above.

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v. D'Arrest's Comet.

1. Observations by Mr. Lassel.

1845.	Sidereal Time. h m s	Apparent R.A. h m s	Sidereal Time. h m s	Apparent Dec. h m s
Jan. 19	14 50 25·5	18 59 25·9	14 50 25·5	+46 13 31
20	3 50 40·1	18 57 50·7	3 46 15·3	46 32 0·7
24	3 10 20·1	18 43 59·0	3 6 54·2	48 58 44·2
Feb. 8	8 25 19·8	16 6 35·5	8 20 15·6	61 36 11
14	9 3 25·4	13 10 3·6	9 4 3·5	58 37 30
March 11	7 53 3·1	9 12 54·1	7 49 44·5	— 2 16 11·3

2. Observations by Mr. Rumker, at Hamburg. Communicated by Dr. Lee.

1845.	Mean Time at Hamburg. h m s	Apparent R.A. of Comet. ° ′ ″	Apparent Declination. ° ′ ″
Jan. 3	7 45 3·4	292 34 1·5	38 35 17·2
10	7 45 54·4	290 5 18·5	41 30 37·7
11	16 11 22·6	289 30 35·3	42 6 47·5
12	7 32 11·4	289 12 55·8	42 24 17·2
13	6 44 29·0	288 45 24·8	42 51 19·3
30	12 0 29·8	272 32 52·5	53 39 43·8
Feb. 3	15 55 38·8	262 36 38·1	57 28 39·3
5	10 37 14·8	256 25 51·0	59 9 31·7
6	9 45 53·6	252 24 11·8	60 1 44·2
7	8 50 45·2	247 50 19·6	60 49 42·1
8	9 2 8·6	242 22 25·6	61 31 44·4
9	13 54 27·9	234 54 57·6	62 7 37·6
10	10 24 48·5	230 43 51·0	62 18 44·6
18	17 28 43·5	171 30 21·9	46 21 8·8
19	17 22 1·1	167 8 56·6	42 43 59·7
24	7 59 25·5	153 18 52·7	26 17 12·9
26	11 20 39·5	149 16 53·6	19 49 53·6
27	9 56 5·5	147 49 30·4	17 18 16·4
Mar. 1	10 7 41·7	145 13 0·3	12 31 37·2
5	11 14 21·3	141 27 44·2	5 6 18·8
8	9 1 47·0	139 37 3·0	1 9 13·2

3. Observations at Dr. Lee's Observatory, Hartwell. By Mr. Glaisher and Rev. Mr. Reade.

1845.	Greenwich M. Solar Time. h m s	Apparent R.A. h m s	Greenwich M. Solar Time. h m s	Apparent N.P.D. ° ′ ″	Star Compared.
Mar. 5	10 58 41	9 25 46·65	11 2 40	84 51 10·4	A.S.C. 1168
6	9 57 49	9 23 7·28	10 50 45	86 22 33·6	Hydræ 131 (Bode)
7	10 4 1	9 20 35·85	——	——	Piazzi IX. 114
8	11 0 21	9 18 13·70	10 31 15	88 55 33·5	Piazzi IX. 54
11	10 14 9	9 12 50·28	10 20 12	92 4 51·1	A.S.C. 1151
12	8 50 29	9 11 21·38	8 50 29	92 55 1·1	——

IV. Observation of the commencement of the Solar Eclipse of May 6, 1845, at the Observatory of the Royal Military College, Sandhurst. By Professor Narrien.

	h m s
Mean Time, May 6, 1845	8 27 19·38 A.M.
or May 5, 1845	20 27 19·38

The sun shone brightly between the clouds, but waves of vapour rolled continually along the edge of his disk, causing the instant of commencement to be uncertain within four or five seconds.

By a geodetical operation the observatory is connected with one of the stations (Norris' obelisk on Bagshot Heath) in the Ordnance Survey; from which have been found,—

	° ′ ″
For the latitude of the observatory	51 20 32·99 N.
For the longitude (in time) West of Greenwich	3 3·78

Clouds prevented the end of the eclipse from being observed.

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